

As an important cause of baldness in men, the author places the wearing of stiff and heavy hats, which for hours together compress the blood-vessels of the scalp and impair its nutrition and that of the hair. He points out that the common straw hat is often responsible for as much compression as the cylinder hat.

The part played by general organic and nervous diseases in causing baldness and premature greyness is considered, and these conditions obviously demand treatment at the hands of the physician. The rôle of micro-organisms in the production of baldness is perhaps insufficiently dealt with in the light of the work of Sabouraud and others in seborrhœa. Attention is, however, directed to the effects of the parasites of ringworm and favus. But in these diseases and in alopecia areata the patient will naturally seek medical advice.

Though the work is obviously written as a popular treatise, its perusal will be of value to the medical practitioner, who very rarely gives attention to the subject, which is one of great interest to the public, who are only too ready to fly to various nostrums brought to their attention by assiduous advertisement.

*Radiant Energy. A Working Power in the Mechanism of the Universe.* By R. W. O. Kestel. (Port Adelaide, 1898.)

THE loose and unscientific use of terms, such as force, the curious absence of ordinary mechanical conceptions, as, for example, inertia, and the almost puerile objections raised against the Newtonian theory of planetary motion, sufficiently proclaim this book to be the work of the untrained amateur with original ideas. In consequence, none but a discerning reader will profit by its perusal. Yet the closing sentence—"Radiant Energy is a Working Power in the Mechanism of the Universe"—is a remarkable one, considering that the book is dated as having been published five years ago. The researches of Nichols and Hull in America, and Lebedew in Russia, on the pressure due to radiation have established the author's contention. In the chapter on comets some of our present notions of the cause of comets' tails are clearly anticipated, but in applying the same idea to other parts of the mechanism of the universe, the author has fallen into the error of imagining a repulsion from the sun "just thirty thousand million times too large." The main idea is that "a repelling force radiating from the sun" "partakes of the sun's motion of rotation," and "is carried round in the direction the sun is revolving." The author justifies himself by mechanical analogies, and uses the idea to account for the origin of both the orbital and axial motions of the planets. By the aid of a model in which the repulsive force is represented by a stream of horizontal water jets emanating from a rotating nozzle, many of the phenomena of planetary motion, it is claimed, can be demonstrated experimentally. The idea, although so crudely expressed, when applied to our present knowledge does seem to possess a real value. Light, radiating from the sun, should, it seems, be affected by the rotation of the sun, in such a way that the resultant of the pressures from all parts of the solar surface which reach a planet passes through a point displaced from the centre in the direction of the edge approaching the planet. The same would apply to pressure exerted by normally projected corpuscles or electrons. The effect is to produce a positive acceleration of the planet in its orbit. Whether there is also a couple acting to produce rotation suggests a nice problem for the astronomer. Is it possible that these infinitesimal pressures acting over infinite time could originate the motions of the planets?

Could these pressures maintain the planet in uniform motion through a resisting ether? These problems should now admit of a definite answer, and seem worthy of a more competent analysis than the reviewer is able to give.

F. S.

*Physikalisch-chemische Theorien.* Von A. Reychler, nach der dritten Auflage des Originals bearbeitet von B. Kühn. Pp. xii+380. (Braunschweig: Vieweg und Sohn, 1903.) Price 9 marks.

For its compass this volume contains a wonderful amount of well-arranged material. It covers the ground usual in elementary works on physical chemistry, but by concise treatment of descriptive and theoretical matter the author finds room for much detail that has no place in other books of equal size. This gives it considerable value as an elementary work of reference, whilst it rather detracts from its suitability to the needs of the beginner.

What will probably render the book most interesting to English readers is the substitution by the author of a peculiar hypothesis of hydrolytic dissociation for Arrhenius's hypothesis of electrolytic dissociation, which, however, is duly expounded in its place. The author conceives that when a salt is dissolved in water it dissociates into the corresponding acid and base, the degree of dissociation being presumably equal to that attributed to the salt by Arrhenius's theory. The behaviour of acids and bases themselves is explained by an auxiliary hypothesis which postulates the separation from the total solvent water of a special kind of water molecule which cannot pass an osmotic membrane permeable to the other water molecules. Unfortunately the author makes no attempt to carry out his theory in detail, and so the reader is left in a somewhat dubious state of mind regarding its merits.

The author reproduces on p. 78 Traube's erroneous deduction of the degree of association of a liquid from the results of the volume method. A glance at the formula shows that it is only correct when  $\alpha=1$  or  $\alpha=2$ , and is erroneous for all intermediate values.

*Electrical Engineering Measuring Instruments.* By G. D. Aspinall Parr. Pp. viii+328. (London: Blackie and Son, Ltd., 1903.) Price 9s. net.

MR. ASPINALL PARR has aimed at giving a description of all the leading electrical measuring instruments on the market, and he has carried out this object with a painstaking thoroughness worthy of a better cause. There can be few instruments enjoying any respectable sale which are not included in this book, and the descriptions are exceedingly clear; so also are the illustrations of the working parts, yet the reader gains little more from the book than he could gain, with perhaps a trifle more trouble, from a perusal of the makers' catalogues. "Fig. 70," to quote from the book, "shows the general appearance of this instrument with the index pointer set to 102 and the pointer clamped at zero," and Fig. 70—a picture of a brass case and a paper scale—is typical of quite 50 per cent. of the 370 excellently reproduced illustrations. The importance of instruments to electrical engineers is not to be underrated, and it is quite true, as the author says in his preface, that the literature of the subject has been neglected. But the literature that is needed is not a collation of catalogues, but something that may guide the purchaser in selecting an instrument suited to his purpose. Mr. Parr makes a point of having avoided comparison, yet this is the very thing that is wanted; in many cases one can form no idea whether the instrument is suited for high or low voltages, for large or small currents, what is its accuracy under different conditions, or what even is the general accuracy obtainable with instruments of a

